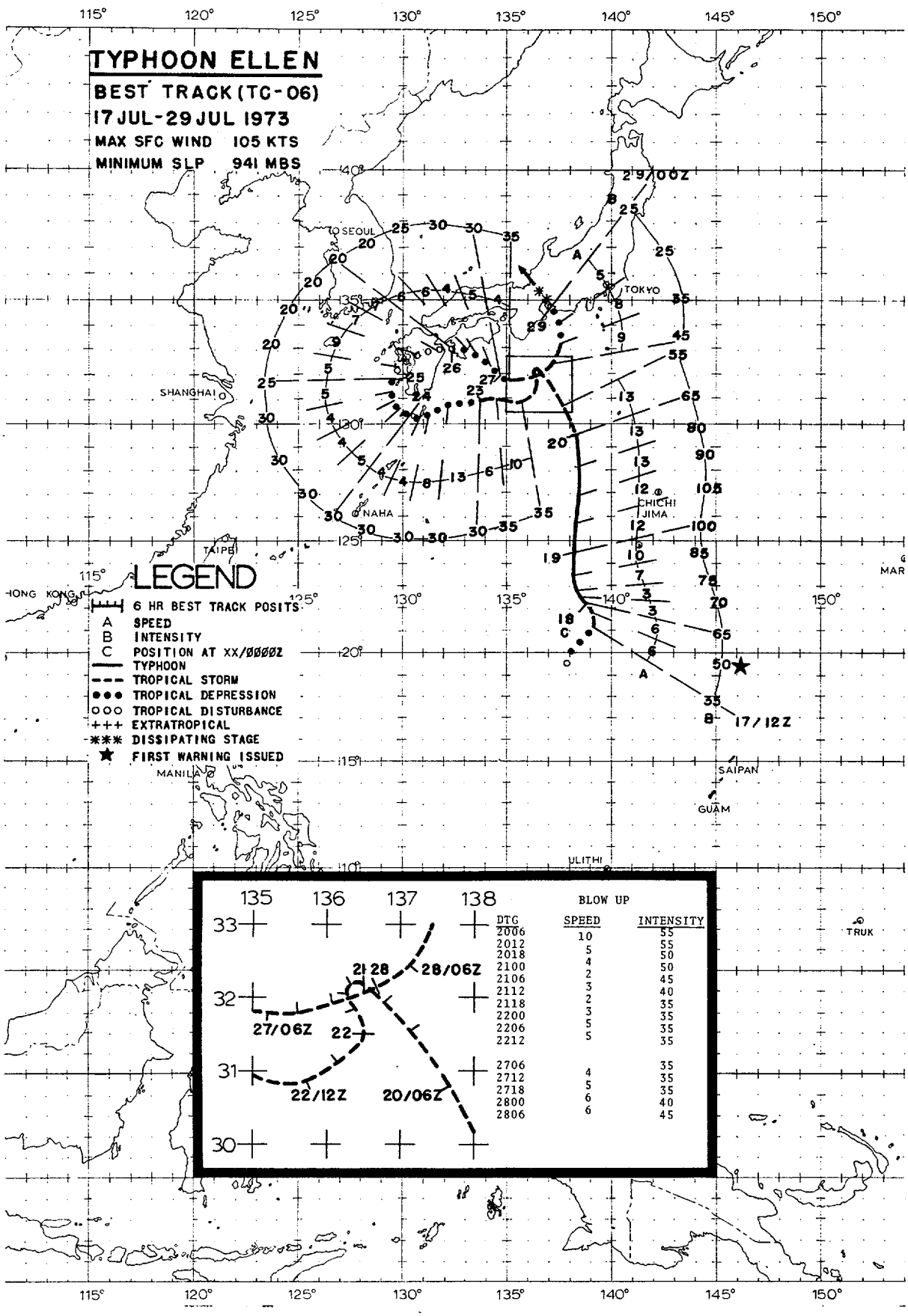

DTG	SPEED	INTENSITY
2006	10	55
2012	5	55
2018	4	50
2100	2	50
2106	3	45
2112	2	40
2118	3	35
2200	5	35
2206	5	35
2212		35
2706	4	35
2712	5	35
2718	6	35
2800	6	40
2806		45

The first indication of what was to become Ellen appeared in the surface data on 15 July as an increased troughing in the extensive convergence zone southeast of Typhoon Billie. By 17 July, high resolution DMSP satellite imagery confirmed the existence of a closed circulation in the trough near 20°N 138°E (Figure 4-9).

Ellen evolved unusually far north in the trailing convergence area of Typhoon Billie. Furthermore, in the early stages of development, the upper tropospheric outflow was most obviously influenced by the TUTT. Post-analysis of 200mb synoptic charts and satellite data indicates that the formation was assisted by a small, but pronounced, ridging induced on the east side of a westward moving cell in the upper tropospheric trough.

Ellen intensified rapidly, reaching typhoon strength by the 18th. Iwo Jima (Japanese Maritime Self Defense Force) reported southeasterlies with maximum gust of 44 knots as she passed to the west within 165nm (19/0200 GMT). Ellen achieved peak intensity as a reconnaissance aircraft observed maximum winds of 105 knots and a central pressure of 941mb (19/0420 GMT).

During the early portion of her life, Ellen tracked almost due north as Billie had done. She moved to the north beneath upper tropospheric northerly flow (35-40 knots). By late on the 19th, the strong vertical shearing environment caused her to deteriorate rapidly over open water (Figure 4-10). By the 20th, the upper level anticyclone over Ellen had sheared off exposing her low level circulation. Convective activity at this time was confined to convergence areas well south and southeast of the center.

As a weak low-level circulation, the remains of Ellen drifted westward under the influence of the troughing left by Billie and Dot and a quasi-stationary anticyclone over the Sea of Japan. Satellite imagery on 23 July indicated a rejuvenation of convection over the circulation which then persisted through 28 July with varying degrees of intensity. Reconnaissance aircraft on 24 July confirmed the presence of a warm core, closed circulation. As a result of the weak steering flow, Ellen's movement was erratic during the period from the 21st to the 28th.

On the 28th, she reintensified once more 90nm from the south coast of Honshu. The Japanese weather ship OJIKA and two other ships reported winds of 30 to 35 knots around Ellen (28/0000Z). She reached a peak of 45 knots as a shortwave trough over the Sea of Japan caused her to move on a northward course over south central Japan dissipating over land on the 29th.

FIGURE 4-9. *Formative stages of Ellen centered 300 nm southwest of Iwo Jima, 17 July 1973, 0221 GMT. (DMSP imagery)*

FIGURE 4-10. *Typhoon Ellen (right) at peak intensity. Dot (left) as a tropical depression, 19 July 1973, 0333 GMT. (DMSP imagery)*